REMARKS

The Official Action and the numerous rejections under the provisions of 35 USC 112, paragraphs 1 and 2 have been carefully reviewed. The review indicates that the claims, especially as amended, in light of the absence of any prior art, should be allowed. Reconsideration and allowance are therefore respectfully requested.

Before contending with the grounds upon which the litany of rejections have been made, a brief summarization of the essentials of the invention's thermal tolerant mannanase from acidothermus cellulolyticus will be provided to foster better grasp of the inventions metes and bounds, and to establish a clearer line of demarcation between the invention and the speculative ranges and depths alleged as grounds for the rejections under 35 USC 112, paragraphs 1 and 2.

The invention provides a novel ManA member of the glycoside hydrolase (GH) family of enzymes, that is a thermal tolerant glycoside hydrolase useful in the degradation of mannans. ManA polypeptides of the invention include those having an amino acid sequence shown in SEQ ID NO:1, and polypeptides having substantial amino acid sequence identity to the amino acid sequence of SEQ ID NO:1 and useful fragments thereof, including, a catalytic domain having significant sequence similarity to the GH5 family, a first carbohydrate binding domain (type II) and a second carbohydrate binding domain (type III).

The invention also provides a polynucleotide molecule encoding ManA polypetides and fragments of ManA polypetides, such as catalytic and carbohydrate binding domains. Polynucleotide molecules of the invention include those molecules having a nucleic acid sequence as shown in SEQ ID NO:2; those that hybridize to the nucleic acid sequence of SEQ ID NO:2 under high stringency conditions; and those having substantial nucleic acid identity with

the nucleic acid sequence of SEQ ID NO:2 and variants and derivatives of the ManA polypetides, including fusion proteins such as ManA polypetide fused to a heterologous protein or peptide.

Claims 64 and claims 65-72 were rejected under the second paragraph 35 USC 112 on allegations of failing to particularly point out and distinctly claim the invention; however, in view of the amendments to these claims, with the inclusion of the word "consisting" instead of comprising for the catalytic domain glycoside material, the metes and bounds are now clear.

Withdrawal of the rejection is respectfully requested.

Claims 64, 65, 73 and claims 66-72 were rejected under the second paragraph of 35 USC 112, also on grounds of indefiniteness and failing to particularly point out the invention; however, in view of the fact that these claims have now been amended to recite, for uniformity sake, the ManA polypetide, the rejection is no longer applicable.

Withdrawal of the rejection is respectfully requested.

Claims 26-34, 43-44, 63-68 and 73 were rejected under the first paragraph of 35 USC 112 on allegation of lack of enablement; however, it is not any mannanase that is under consideration here, but instead, the purified ManA polypeptide consisisting of a catalytic domain glycoside hydrolase family 5 (GH5), a carbohydrate binding domain III, and a carbohydrate binding domain II, in that order. Accordingly, the scope of the claim is not in doubt under the considerations laid down in In Re Wands.

Withdrawal of the rejection is respectfully requested.

Claims 64-68 and 73 were rejected under the first paragraph of 35 USC 112 on allegations that the subject matter described was not reasonably conveyed so as to denote the inventors had possession of the claimed invention at the time the application was filed; however, it is not in fact the case that these claims are directed to a genus of polypeptides including

modified polypetide sequences that have not been disclosed, for the reason that: SEQ ID NO:I and 3, 4, and 5 are clearly set forth in Table 1 on page 18, Table 2 on page 22, Table 3 on pages 33 and 34, Table 4 on page 6, and Table 5 on page 7. The contents of these Tables are clearly representative, without undue experimentation, for the contention that the inventors had possession of the claimed invention at the time the application was filed. Therefore, the contents of the Tables should not have to be recited in claims 64-68 and 73 since these claims by established patent law must be read in light of the disclosure.

Withdrawal of the rejection is respectfully requested.

Applicants acknowledge the inadvertent error associated with regard to withdrawal of the Office Action of 8/26/03, to the effect that it has no bearing on the instant Office Action and that applicants' response by way of filing a RCE application after the Advisory Action was not intended to create an impression otherwise.

Applicants acknowledge with appreciation, the indication that claims 10 and 11 are allowable, and that claims 69-72 would also be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. These claims have so been revised so that, as amended, claims 69 and 66 from which it depends have been merged into claim 64, claims 70 through 72 now depend on presently amended claim 64, and industrial detergent mixture claim 73 includes the composition of presently amended claim 64.

In view of the foregoing amendments, remarks and explanations, it is believed that the application is now in condition for allowance and early notification of the same is earnestly solicited.

Respectfully submitted,

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